Project Title: Intent Chatbot Using Python (Data-Science Project)

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Project Description:

A chatbot is a piece of software that can communicate and execute tasks in the same way that a human can. Chatbots are commonly deployed in customer service, social media marketing, and instant messaging with clients. Chatbots are incredibly beneficial to both businesses and their customers. Instead of calling service centers, the majority of individuals choose to talk straight from a chatbot. In this project we are going to make a chatbot in which we will use deep learning techniques to create a chatbot. The information will be used to train the chatbot, which will include categories (intents), patterns, and replies. We find best fit recurrent neural network (LSTM) and use it to identify which category the user's message relates to, and then we choose a random answer from the list. Steps we are going to perform in this project includes, import libraries and then load the data, which is then preprocessed. Create and test training data, then train the model for interacting with the chatbot.

Classifiers Used:

1. **Recurrent Neural Network (LSTM):**
   We use a special recurrent neural network (LSTM) to classify which category the user's message belongs to and then we will give a random response from the list of responses. RNN works on the principle of saving the output of a particular layer and feeding this back to the input in order to predict the output of the layer. Neurons propagate in both directions (from inputs to outputs and from outputs to inputs) in Recurrent Neural Networks. This creates loops in the neural network architecture which acts as a 'memory state' of the neurons. This state allows the neurons an ability to remember what have been learned so far.
   LSTM is more accurate on datasets using longer sequence

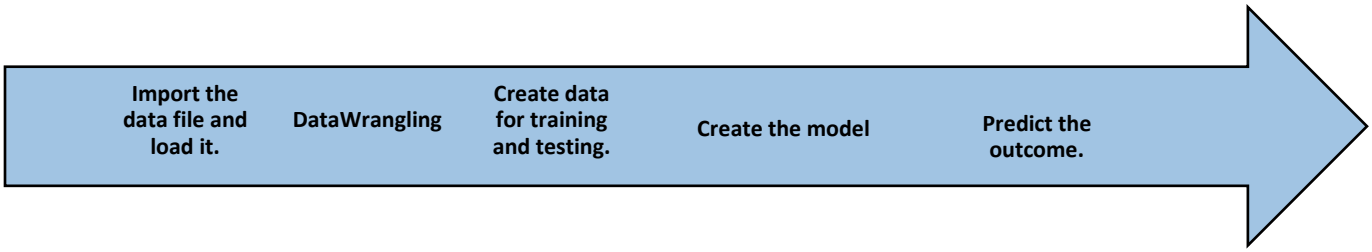
2. **Recurrent Neural Network – GRU:**
   Gated Recurrent Units are another form of recurrent neural networks. GRU (Gated Recurrent Units) are similar to the LSTM networks. GRU is a kind of newer version of RNN. It is faster than LSTM, it uses less parameters and less memory make it faster.

3. **Decision Tree:**
   Decision Tree is a Supervised Machine Learning Algorithm that makes choices using a set of rules, similar to how people do. A Machine Learning classification method is designed to make decisions, in one way. Decision trees offer user accurate and pointed answers to their queries and require a thorough analysis.

4. KNN:
   The KNN algorithm is a supervised machine learning technique that can be used to handle classification and regression problems. It's simple to set up and comprehend, but it has the disadvantage of being substantially slower as the amount of data in use grows. The training

method was inconvenient; entering each data point in chat can be tedious and time-consuming. But, once again, the model's application proved illogical. With less accuracy.

Steps:



Comparison Matrix:

LSTM	Highest accuracy
GRU	High accuracy
DT	Medium accuracy
KNN	Lowest accuracy

Conclusion:

In this data science project, we learn while making this project that about chatbots and implemented a deep learning version of a chatbot in Python which is accurate. You can customize the data according to business requirements and train the chatbot with great accuracy.